

FINAL DRAFT

For Public Hearing on 11/17/99

Contact: Patty Nelson, Phone (602) 506-6709, Fax (602) 506-6179

Email: pnelson@mail.maricopa.gov

REGULATION III - CONTROL OF AIR CONTAMINANTS

RULE 313

INCINERATORS, BURN-OFF OVENS AND CREMATORIES

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**MARICOPA COUNTY
AIR POLLUTION CONTROL REGULATIONS**

REGULATION III - CONTROL OF AIR CONTAMINANTS

RULE 313

INCINERATORS, BURN-OFF OVENS AND CREMATORIES

SECTION 100 - GENERAL

101 PURPOSE: To establish standards for incinerators, ~~that are used for refuse disposal, burn-off ovens, used in either metal salvage operations or used to remove non-metallic coatings from metal parts, and human and animal crematories and~~ to limit particulate emissions from burning in all of these sources.~~incinerator burning.~~

102 APPLICABILITY: This rule applies to all incineration except the incineration of hazardous waste as identified under subtitle C of the federal Resource Conservation and Recovery Act, or the incineration of ~~medical waste, hospital, medical or infectious waste as identified in subject to Rule 317 of the Maricopa County Air Pollution Control Regulations or subject to 40 CFR Part 60 Subpart Ec.~~ In addition, This rule applies to those burn-off ovens used in metal salvage operations or used to remove non-metallic coatings such as rubber, hydrocarbons, oils, greases or paints from metal parts by the application of heat that meet at least one of the following conditions:

a. Charge burning capacity greater than 25 lb. per hour;

b. Internal oven volume greater than 1 cubic yard;

c. Fuel burning capacity of primary chamber greater than 3200,000 BTU/hr.

This rule does not apply to the types of ovens listed in Section 307 of this rule. This rule applies to all human and animal crematories.

SECTION 200 - DEFINITIONS: For the purpose of this rule, the following definitions shall apply:

201 AFTERBURNER - The heating compartment or chamber device associated with in an incinerator, burn-off oven or crematory that is designed to provide excess air and heat for complete combustion of the gases created in the primary chamber so as to control particulate emissions.

202 BURN-OFF OVEN - A heating device used to remove rubber and other materials such as hydrocarbons, oils, greases, and paints, coatings, rubber and insulation from from electrical and metal other materials or parts by burning or charring. These ovens may

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also be used in metal salvage operations. This definition may include controlled pyrolysis ovens, pyrolysis furnaces, cleaning ovens, electric induction furnaces and electric pyrolysis furnaces.

2043 COMBUSTIBLE REFUSE - Any solid or liquid combustible waste material containing carbon in a free or combined state.

204 CREMATORY - An incinerator used for the cremation of human and animal bodies, their body parts, and for the incineration of associated animal bedding. Associated wrappings, wherein the corpse is contained, are also included in this definition.

2025 FLUE - A duct or passage, such as a stack or chimney, for air contaminants.

206 HOSPITAL WASTE - Discards generated at a hospital, or clinic, except unused items returned to the manufacturer. The definition of hospital waste does not include human corpses, remains, and anatomical parts that are intended for internment or cremation.

2037 INCINERATOR - Any equipment, machine, device, contrivance or other article and all appurtenances thereof used for the destruction or reduction by burning ~~off~~ of combustible refuse or salvage material.

2048 MEDICAL WASTE - Any non-gaseous waste, including infectious wastes, which is generated in the diagnosis, treatment, or immunization of human beings or animals, in research pertaining thereto, or in production or testing of biological agents and substances. Medical waste does not include any wastes identified under subtitle C of the Resource Conservation and Recovery Act (RCRA) as hazardous or as household waste, but includes those pharmaceuticals which are not identified as hazardous by subtitle C of RCRA. It does not include human corpses or remains or waste from crematories. It does include cultures and stocks of infectious agents and human pathological waste; human blood and blood products, sharps, needles and broken glass that were in contact with infectious waste; animal wastes exposed to infectious wastes, isolation wastes and unused sharps, needles and syringes. An expanded definition of medical waste is found in 40 CFR Part 60 Subpart Ec.

209 METAL SALVAGE OPERATIONS - Any source operation in which combustion pyrolysis is carried on for the principal purpose, or with the principal result, of recovering metals which are introduced into the operation as essentially pure metals, or alloys thereof, by oxidation of physically intermingled combustible material. Operations in which there is a complete fusion of all such metals are not included in these types of operations.

20510 MULTIPLE-CHAMBER STARVED-AIR INCINERATOR (or CONTROLLED AIR INCINERATOR) - Any incinerator consisting of two or more refractory-lined combustion chambers in series, physically separated by refractory walls, interconnected by gas passage ports or ducts designed for maximum combustion of the material to be burned. A multiple chamber incinerator is designed to burn waste in at least two independent chambers:

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210.1 **Primary Chamber** - Initial compartment wherein the majority of waste volume reduction or heat treatment occurs by combustion. Primary chambers are operated at lower temperatures than secondary chambers or afterburners.

210.2 **Secondary Chamber** - Compartment which operates at excess air conditions wherein destruction of gas-phase combustion products occurs. Passage ports, ducts, flues, chimneys, or stacks with burners shall not be considered controlled air secondary chambers unless the combustion zone exhibits design measures for the retention of the gas stream in the chamber, turbulence or mixing, and the availability of excess air, as determined by engineering analysis.

211 **PATHOLOGICAL WASTE** - Waste material that consists of only human or animal remains, anatomical parts and/or tissue, the bags/containers used to collect and transport the waste material, and animal bedding (if applicable).

2122 **RESIDENCE TIME** - The average time that gases spend in a defined space, also known as bulk gas average residence time.

~~**213** **STOICHIOMETRIC CONDITIONS** - A state of circumstances wherein the amount of combustion air or oxygen is of sufficient quantity to convert all of the carbon to carbon dioxide.~~

~~**214** **SUB-STOICHIOMETRIC CONDITIONS** - A state of circumstances wherein the amount of combustion air or oxygen is of an insufficient quantity to combine with all of the fuel and waste so that incomplete combustion occurs.~~

SECTION 300 - STANDARDS

301 CONTROLS REQUIRED: No person shall burn any combustible refuse in any incinerator, or perform metal salvage operations or remove non-metallic materials utilizing a burn-off oven, or burn human or animal corpses in a crematory within Maricopa County except in an approved multiple-chamber incinerator, equipped with auxiliary fuel, or equipment equally effective for the purposes of air pollution control as an approved multiple-chamber incinerator using the following air pollution control equipment:

301.1 **Incinerators:** Incinerators shall consist of a multiple-chamber incinerator that shall reach a minimum temperature of 1600°F (871°C) in the secondary chamber or afterburner, with a residence time of at least 1 second in the secondary chamber or afterburner during the period of combustion in order to destruct the gas-phase combustion products.

301.2 **Burn-Off Ovens:** Burn-off ovens shall consist of an oven with at least two chambers. The secondary compartment or afterburner shall reach a minimum temperature of 1400°F (760°C) with a residence time of at least 1/2 second during the period of combustion in order to destruct the gas-phase combustion products.

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301.3 Crematories: Crematories shall consist of an incinerator with at least two chambers. The secondary compartment or afterburner shall reach a minimum temperature of 1600°F (871°C) with a residence time of at least 1 second during the period of combustion in order to destruct the gas-phase combustion products.

301.4 Alternate Operating Conditions: If the manufacturer's specifications for an incinerator, crematory or burn-off oven are different than the temperatures set forth in subsection 301.1, 301.2 or 301.3, the manufacturer's specifications may be used instead, providing that the owner or operator demonstrates compliance with Section 302 and 303.

301.5 Operating Restriction: The minimum temperatures listed in subsection 301.1, 301.2, 301.3 and 301.4 shall be reached in the incinerator, burn-off oven or crematory prior to the introduction of the material to be combusted.

302 EMISSIONS STANDARD - OPACITY: Notwithstanding the provisions of Regulation III, Rule 300 (Visible Emissions), no person shall cause, suffer, or allow the emission into the atmosphere from any incinerator, burn-off oven, or crematory for an aggregate of more than 30 seconds in any 60 minutes any air contaminant which is a shade or density darker than 20 percent opacity, as determined by EPA Method 9.

303 EMISSIONS STANDARD - PARTICULATES: No person shall cause, suffer, allow or permit the emission into the atmosphere from any incinerator, burn-off oven or crematory particulate matter which exceeds 0.08 grain per cubic foot of dry flue gas at standard conditions adjusted either to 12 percent carbon dioxide (CO₂) in the exhaust gases and calculated as if no auxiliary fuel had been used or to 7 percent oxygen (O₂).

304 OPERATING EQUIPMENT - PERFORMANCE TESTING: ~~No person shall burn materials in any new source incinerator or crematory for which construction has commenced after [date of adoption] until it has passed a performance test based on the emission standards in Sections 302 and 303 of this rule. Existing, permitted incinerators and crematories shall undergo performance testing at least one time every five (5) years. Burn-off ovens shall not be required to meet performance testing provided the oven is operated at the manufacturer's specifications or the afterburner reaches a minimum temperature of 1400° F for ½ second of residence time.~~

302305 PROHIBITION NIGHT BURNING: No incinerator, burn-off oven or crematory burning shall be conducted between sunset and the following sunrise unless both of the following conditions listed in subsection 305.1 and 305.2 are met:

305.1 A continuous opacity (particulate) monitor shall be operating at all times during night burning. The monitor should be calibrated and maintained in accordance with EPA Performance Specification # 1 and shall be calibrated at least once per day if night burning is conducted. The opacity meter shall be located after (downstream of) all control equipment, prior to the stack exit, and prior to any dilution with ambient air.

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305.2 An ~~qualified operator~~, trained in proper startup, calibration, waste charging and shutdown procedures, must be present at all times during night burning to ensure that the opacity limitation in Section 302 of this rule is not exceeded by terminating the operation until the opacity limitation is met.

~~**303 OPERATING EQUIPMENT - PERFORMANCE TESTING:** No person shall burn combustible refuse in any incinerator until it has passed a performance test based on the emission standards in Sections 305 and 306 of this rule.~~

~~**304 INCINERATOR USE:** Approval of the use of an incinerator by the Control Officer is not intended to exempt the incinerator, its location or operation from the requirements of any public agency exercising proper jurisdiction.~~

~~**305 LIMITATION - PARTICULATE EMISSIONS:** No person shall cause, suffer, allow or permit the emission into the atmosphere from any incinerator particulate matter which exceeds 0.1 grains per cubic foot (229 milligrams per cubic meter) of dry flue gas at standard conditions adjusted either to 12 percent carbon dioxide in the exhaust gases and calculated as if no auxiliary fuel had been used or to seven percent oxygen (O₂).
— (**SHOULD WE LOWER # GRAINS ??? see Pa.. rule**)~~

~~**306 LIMITATION - VISIBLE EMISSIONS:** Notwithstanding the provisions of Regulation III, Rule 300 (Visible Emissions), no person shall cause, suffer, or allow the emission into the atmosphere from any incinerator for an aggregate of more than 30 seconds in any 60 minutes any air contaminant which is a shade or density darker than 20 percent opacity.~~

306 **REQUIREMENTS FOR AIR POLLUTION CONTROL EQUIPMENT:** Any person incinerating or otherwise processing particulate emissions pursuant to this rule shall provide, properly install and maintain in calibration, in good working order and operation, devices that indicate temperatures, pressures, rates of flow, or other operating conditions necessary to determine if the air pollution equipment is functioning properly and is properly maintained. Records shall be kept pursuant to Section 501 ~~that~~which demonstrate that the Control system meets the overall control standard required by Section 300. If the Control System consists of more equipment than an afterburner, such as a baghouse or venturi scrubber, then an Operations and Maintenance plan shall be submitted for approval to the Control Officer.

307 **EXEMPTIONS:** The following types of ovens or heating devices shall not be subject to this rule:

307.1 Laboratory ovens and furnaces.

307.2 Environmental test chambers.

307.3 Ovens used in research facilities.

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307.4 Curing or drying ovens that are operated at temperatures lower than 600° F (316°C).

307.5 Flares.

SECTION 400 - ADMINISTRATIVE REQUIREMENTS

401 COMPLIANCE SCHEDULE: Owners or operators subject to this rule who prior to [date of adoption] have not already submitted to the Control Officer a schedule for complying with this rule shall do so by [six months after adoption]. Full compliance with all applicable provisions of this rule shall be achieved by [12 months after date of adoption].

~~**401 INFORMATION REQUIRED:** No incinerator shall be constructed, remodeled, installed or used until the following information, and any additional information the Control Officer may require, has been filed with and approved by the Control Officer, and then only in compliance with the requirements of these Regulations.~~

~~**401.1** Plans and specifications describing the capacity, amount and type of combustible refuse to be incinerated, proposed fuel, fire chamber and stack details, location of the incinerator with reference to adjacent premises, and auxiliary fuel controls.~~

~~**401.2** Procedures and equipment used to handle refuse and to charge the incinerator.~~

~~**401.3** Methods and equipment for preventing the discharge of contaminants into the ambient air.~~

~~**401.4** Receptacles for storage and means of disposal of residue.~~

SECTION 500 - MONITORING AND RECORDS

501 RECORDKEEPING: Recordkeeping requirements shall include the following types of information:

501.1 **INCINERATORS** shall keep records of the type of combustible material to be incinerated, total weight charged, chamber temperatures and times of the day that the incinerator is operating.

501.2 **BURN-OFF OVENS** shall keep records of the type of combustible material to be burned, chamber temperatures and times of the day that the burn-off oven is operating.

501.3 **CREMATORIES** shall keep records of the number of corpses cremated, chamber temperatures, and times of the day that the crematory is operating. The owner of an animal crematory shall account for either the weight of

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animal corpses charged or the number and type of corpse charged. In addition, if a human crematory burns a large corpse (over 300 lbs.), the approximate weight of the corpse shall be noted.

501.4 Night Burning – If night burning is conducted, the owner or operator shall:

- a. Maintain a continuous record of opacity readings generated by the continuous opacity meter. Records shall include all times the meter is running properly. Records shall also indicate when the instrument is inoperative or has been adjusted or repaired.
- b. Submit to the Control Officer a written report of excess emissions for each calendar quarter and the nature and cause of the excess emissions, if known. The averaging period used for data reporting shall correspond to the averaging period specified in the emission standard for a pollutant source category in question. The required report shall include, as a minimum, the data stipulated in this rule. These periodic reports do not relieve the source operator from the reporting requirements of Rule 100, Section 502.
- c. For opacity measurements, the summary shall consist of the magnitude in annual percent opacity of all six-minute opacity averages greater than any applicable standards in these rules for each hour of operation of the source. Average values may be obtained by integration over the averaging period or by arithmetically averaging a minimum of four equally spaced, instantaneous opacity measurements per minute. Any time periods exempted shall be deleted before determining any averages in excess of opacity standards.
- d. The date and time identifying each period during which the continuous opacity monitoring system was inoperative, except for zero and span checks and the nature of system repair or adjustment shall be reported. The Control Officer may require proof of continuous opacity monitoring system performance whenever system repairs or adjustments have been made.
- e. Owners or operators conducting night burning shall maintain a file of all information reported in the quarterly summaries and all other data collected by the continuous opacity monitoring system or as necessary to convert monitoring data to the units of the applicable standard.
- f. Owners or operators shall maintain documentation of operator training. These records shall consist of the dates of training and a description of the material covered in the training course.

~~The owner or operator of any incinerator subject to the provisions of this rule shall on each day of use record the total weight charged and the hours of operation. Records for incinerators, burn-off ovens and crematories shall include: type of combustible~~

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~~refuse or metal salvage material to be incinerated; proposed fuel, temperatures and residence times; fire chamber and stack details; location of the incinerator, burn-off oven or crematory with reference to adjacent premises; auxiliary fuel controls; methods and equipment for preventing the discharge of contaminants into the ambient air; and receptacles for storage and means of disposal of residue. Records shall also account for all control device failures and down time including time, date and cause.~~

~~**501.1** The owner or operator of any incinerator or burn-off oven subject to the provisions of this rule shall on each day of use record the total weightA charged and the hours of operation.~~

~~**501.2** The owner or operator of any human crematory shall account for the number of corpses burned and the hours of operation. The owner or operator of an animal crematory shall account for either the number of corpses or the weight of the charge.~~

502 **RECORDKEEPING RETENTION:** Copies of reports and supporting documentation required by the Control Officer shall be kept on site and retained for at least five years. Records and information required by this rule shall also be retained on site for at least five years.

5023 **COMPLIANCE DETERMINATION—TEST METHODS:** When more than one different test method is permitted for a determination, any exceedance of the limits established in this rule determined by any of the applicable test methods constitutes a violation of this rule.

5023.1 For determining total particulate matter, EPA Methods 1 through 5 or their EPA alternates approved by the Control Officer shall be used. Both carbon dioxide and oxygen measurements shall be obtained simultaneously with each Method 5 run.

5023.2 Determination of visible emissions compliance shall be made by a certified emissions observer using Method 9 or by a continuous emission monitor (mandatory for night burning), which is maintained and calibrated in accordance with EPA Performance Specification #1 ~~(40 CFR, Part 60, Appendix B)~~. ~~The observer shall be qualified as an expert visible emissions evaluator and so certified by the Arizona Department of Environmental Quality or by any other agency entity that is acceptable to the Control Officer.~~

5034 **TEST METHODS ADOPTED BY REFERENCE:** The test methods as they exist in the Code of Federal Regulations (CFR), date of publication July 1, 1998, as listed in subsections 504.1 through 504.7, are adopted by reference. These adoptions by reference include no future editions or amendments. Copies of test methods referenced in this Section are available at the Maricopa Environmental Services Department, 1001 North Central Avenue, Phoenix, Az. 85004-1942.

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- 504.1** EPA Test Methods 1 (Sample and Velocity Traverses for Stationary Sources) and 1a (Sample and Velocity Traverses for Stationary Sources with Small Stacks), 40 CFR, Part 60, Appendix A.
- 504.2** EPA Test Methods 2 (Determination of Stack Gas Velocity and Volumetric Flow Rate), 2A (Direct Measurement of Gas Volume Through Pipes and Small Ducts), 2B (Determination of Exhaust Gas Volume Flow Rate from Gasoline Vapor Incinerators), 2C (Determination of Stack Gas velocity and Volumetric Flow Rate in Small Stacks and Ducts), and 2D (Measurement of Gas Volumetric Flow Rates in Small Pipes and Ducts), 40 CFR, Part 60, Appendix A.
- 504.3** EPA Test Methods 3 (Gas Analysis for Carbon Dioxide, Oxygen, Excess Air, and Dry Molecular Weight), 3A (Determination of Oxygen and Carbon Dioxide Concentrations in Emissions From Stationary Sources), 3B (Gas Analysis for the Determination of Emission Rate Correction Factor or Excess Air), and 3C (Determination of Carbon Dioxide, Methane, Nitrogen, and Oxygen from Stationary Sources), 40 CFR, Part 60, Appendix A.
- 504.4** EPA Test Method 4 (Determination of Moisture Content in Stack Gases), 40 CFR, Part 60, Appendix A.
- 504.5** EPA Test Method 5 (Determination of Particulate Emissions from Stationary Sources), 40 CFR, Part 60, Appendix A.
- 504.6** EPA Test Method 9 (Visual Determination of the Opacity of Emissions from Stationary Sources), 40 CFR, Part 60, Appendix A.
- 504.7** EPA Test Method Performance Specification 1 (Specifications and Test Procedures for Opacity Continuous Emission Monitoring Systems in Stationary Sources), 40 CFR, Part 60, Appendix B.